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LOWER INCISOR STABILITY FOLLOWING ORTHODONTIC TREATMENT USING A FIXED SPRING INDUCED APPLIANCE(FSIA)

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Objectives: To evaluate the lower incisor (Li) changes after completion of comprehensive fixed treatment in subjects with different facial patterns who were treated with a FSIA for Class II correction.

Hypothesis: Once the lower incisor position has been established at the end of a FSIA treatment, they will remain stable in the same position after fixed treatment.

Subjects and Methods: A retrospective chart review was undertaken consisting of 115 subjects with Class II malocclusions, 43 male & 72, female. The average length of treatment was 1 year 7 months (S.E \pm 0.57). The average age of the subjects at T1 was 13.7 years (S.E \pm 1.5). Subjects were then categorized into three growth types based on pre-treatment (T0) cephalometric variables (MPA, Y-axis, LFH) with 29 brachycephalic, 53 mesocephalic, and 33 dolichocephalic subjects resulting. Data was compiled using digital lateral cephalometric analysis of the post-treatment FSIA subjects' (T1) and post-treatment comprehensive fixed therapy subjects' (T2) radiographs. Statistical evaluation used a mixed model repeated command to calculate marginal means & a post-hoc analysis to determine pairwise differences with the Tukey's test, reporting least square means.

Results: Dental changes induced by fixed treatment included;

1. retroclination of the Li (LI-MP 5.7-9.7° \pm 1.3 p<0.05)
2. retrusion of Li (LI-APo 0.1-1.0mm \pm 0.3mmp<0.05)

There was no significant difference amongst the different facial groups (p>0.05). There was an increased trend of less incisor retroclination and retrusion for the dolichocephalic group.

Conclusions: Incisor proclination resulting from the FSIA is reversed after fixed orthodontic treatment & Li tend to retrocline and retrude. Use of zero or negative torque prescription in the Li bracket & Li uprighting mechanics throughout treatment ensure the Li return to a position between the initial treatment (T₀) & the final position established with the FSIA (T₁). Facial growth pattern demonstrate no relation to the amount of Li movement. The dolichocephalic group shows less Li change when compared to the other facial patterns.